WHAT IS CLAIMED IS:

1. A method of using a conveyor system for processing substrates in plural vacuum processing chamber installation portions, the conveyor system including:

an atmospheric loader, exposed to the air;

a vacuum loader; and

a lock chamber, having an atmospheric loader side and a vacuum loader side, and having a gate valve for said atmospheric loader side and another gate valve for said vacuum loader side,

wherein said vacuum loader has

(1) a transfer chamber connected to the lock chamber via the another gate valve, the method comprising the steps of:

transferring substrates, to be processed, from said atmospheric loader, exposed to the air, to said lock chamber;

after transferring substrates to the lock chamber, providing a vacuum in said lock chamber;

after providing a vacuum in said lock chamber, transferring substrates to be processed, from said lock chamber to said transfer chamber;

thereafter, transferring processed substrates from said transfer chamber to said lock chamber; and

transferring processed substrates from said lock chamber to said atmospheric loader from which the substrates had been transferred to the lock chamber.

2. A method of transferring at least one wafer in a vacuum processing apparatus, comprising the steps of:

(i) placing a cassette containing at least one wafer to be processed, at a cassette table, exposed to the air;

(ii) loading said at least one wafer sequentially in order from said cassette, by means of a first conveyor, to a load lock chamber, and therefrom, by means of a second conveyor, to a transfer chamber under vacuum; and

(iii) after processing the wafers, unloading processed wafers from a plurality of vacuum processing chambers into said cassette at said cassette table, from which the wafers had been loaded, by means of the second conveyor in said transfer chamber under vacuum, an unload lock chamber and said first conveyor.

3. A method of transferring cassettes in operating a vacuum processing apparatus, the vacuum processing apparatus including:

an atmospheric loader, exposed to the air;

a vacuum loader; and

a lock chamber for connecting said atmospheric loader and said vacuum loader, wherein

said atmospheric loader includes a cassette mount unit located in front of said lock chamber, and

said cassette mount unit has a cassette positioning plane in which all cassettes, containing samples to be processed and exposed to the air, are positioned in front of a front wall of said lock chamber,

the method comprising a step of:

placing said cassette on and removing said cassette from said cassette mount unit which is in front of said lock chamber.

4. The method according to claim 3, wherein said cassette is one of a plurality of cassettes positioned in a single row in front of said lock chamber.

5. A method of transferring cassettes in operating a vacuum processing apparatus, the vacuum processing apparatus including:

an atmospheric loader, exposed to the air:

a vacuum loader: and

a lock chamber for connecting said atmospheric loader and said vacuum loader, wherein

said atmospheric loader includes a cassette mount unit located in front of said lock chamber, and

said cassette mount unit has a cassette positioning plane in which cassettes, containing samples to be processed and exposed to the air, are positioned in front of a front wall of said lock chamber, and

an automatic cassette loader for loading cassettes into the atmospheric loader,

the method comprising a step of:

placing said cassette on and removing said cassette from said cassette positioning plane of said cassette mount unit by said automatic cassette loader, in accordance with

data sent from a host control apparatus.

6. The method according to claim 5, wherein said cassette positioning plane is a plane in which all cassettes, to be positioned in front of the front wall of the lock chamber, are positioned in a single row in front of said front wall.

7. A method of operating a vacuum processing apparatus, the vacuum processing apparatus including:

an atmospheric loader, exposed to the air;

a vacuum loader; and

a lock chamber for connecting said atmospheric loader and said vacuum loader, wherein

said atmospheric loader includes a cassette mount unit located in front of said lock chamber,

said cassette mount unit has a cassette positioning plane in which all cassettes, containing samples to be processed and exposed to the air, are positioned in front of a front wall of said lock chamber, and

an automatic cassette loader for loading cassettes into the atmospheric loader,

the method comprising the steps of:

placing said cassette on said cassette positioning plane, in front of said lock chamber, and removing said cassette, by said automatic cassette loader in accordance with data sent from a host control apparatus; and

automatically executing a sample processing in said

vacuum processing apparatus, based on processing data.

8. The method according to claim 7, wherein said cassette positioning plane is a plane in which all cassettes, to be positioned in front of the front wall of the lock chamber, are positioned in a single row in front of said front wall.

9. A method of operating a vacuum processing apparatus, the vacuum processing apparatus including:

an atmospheric loader, exposed to the air;

a vacuum loader; and

a lock chamber for connecting said atmospheric loader and said vacuum loader, wherein

said atmospheric loader includes a cassette mount unit located outside of said lock chamber, and

said cassette mount unit has a cassette positioning plane in which all cassettes, containing samples to be processed, exposed to the air, are positioned in front of a front wall of said lock chamber,

wherein the method comprises the steps of:

carrying in a sample, disposed under atmospheric pressure, from a cassette, exposed to the air, in said cassette positioning plane, positioned in front of the front wall of said lock chamber, into at least one of a plurality of vacuum processing chambers of said vacuum processing apparatus, using said lock chamber;

processing said sample in said at least one vacuum

processing chamber; and

carrying out said sample, processed in said at least one vacuum processing chamber, into said atmospheric pressure, using said lock chamber.

10. The method according to claim 9, wherein said cassette positioning plane is a plane in which all of the cassettes are positioned in a single row in front of the front wall of the lock chamber.

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11. A method of operating a vacuum processing apparatus, the vacuum processing apparatus including:

an atmospheric loader, exposed to the air;

a vacuum loader; and

a lock chamber for connecting said atmospheric loader and said vacuum loader, wherein

said atmospheric loader includes a cassette mount unit located outside of said lock chamber, and

said cassette mount unit has a cassette positioning plane in which all cassettes, containing samples to be processed, exposed to the air, are positioned in front of a front wall of said lock chamber,

wherein the method comprises the steps of:

carrying in a sample, disposed in an atmosphere different than an atmosphere in a plurality of vacuum processing chambers, from a cassette positioned in front of the front wall of the lock chamber, exposed to the air, into at least one of said vacuum processing chambers, using said

lock chamber;

processing said sample in said at least one vacuum processing chamber; and

carrying out said sample, processed in said at least one vacuum processing chamber, into said atmosphere different from the atmosphere in said at least one vacuum processing chamber, using said lock chamber.

12. The method according to claim 11, wherein said cassette positioning plane is a plane in which all of the cassettes are positioned in a single row in front of the front wall of the lock chamber.

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13. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, at a position in front of a front wall of a lock chamber, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, using the lock chamber;

processing said sample in said vacuum processing chamber;

carrying out said sample, processed in said vacuum processing chamber, to said cassette, using said lock chamber; and

removing said cassette from the cassette table.

14. The method according to claim 13, wherein the

cassette is placed at a position in a single row in front of the front wall of the lock chamber.

15. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, using a lock chamber;

processing said sample in said vacuum processing chamber;

carrying out said sample, processed in said vacuum processing chamber, to said cassette which had contained the sample prior to carrying the sample into the vacuum processing chamber, using said lock chamber; and

removing said cassette from the cassette table.

16. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, at a position in a single row in front of a front wall of a lock chamber, on a cassette table, disposed under a cassette transferring atmospheric pressure;

carrying in the sample into a vacuum processing chamber, using the lock chamber;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum

processing chamber, using said lock chamber.

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17. A method of treating a semiconductor wafer, comprising the steps of:

placing a wafer storing structure, containing the semiconductor wafer, at a position in front of a front wall of a lock chamber, on a wafer storing structure table, the wafer storing structure being exposed to the air;

carrying in the semiconductor wafer into a vacuum processing chamber, using a lock chamber;

processing said semiconductor wafer in said vacuum processing chamber;

carrying out said semiconductor wafer, processed in said vacuum processing chamber, to said wafer storing structure which had contained the semiconductor wafer prior to carrying the semiconductor wafer into the vacuum processing chamber, using said lock chamber.

18. The method according to claim 17, wherein the wafer storing structure is placed at a position in a single row in front of the front wall of the lock chamber.

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19. A method of treating a semiconductor wafer, comprising the steps of:

placing a wafer storing structure, containing the semiconductor wafer, at a position in front of a front wall of a lock chamber, on a wafer storing structure table, disposed under a wafer storing structure transferring atmospheric

pressure;

carrying in the semiconductor wafer into a vacuum processing chamber, using the lock chamber;

processing said semiconductor wafer in said vacuum processing chamber;

carrying out said semiconductor wafer, processed in said vacuum processing chamber, to said wafer storing structure which had contained the semiconductor wafer prior to carrying the semiconductor wafer into the vacuum processing chamber, using said lock chamber.

20. The method according to claim 19, wherein the wafer storing structure is placed at a position in a single row in front of the front wall of the lock chamber.

21. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, at a position in front of a front wall of a lock chamber, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, using the lock chamber, wherein the sample is carried directly from the cassette to the lock chamber;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum processing chamber, to said cassette which had contained the sample prior to carrying the sample into the vacuum processing

chamber, using said lock chamber.

22. The method according to claim 21, wherein said cassette is placed at a position in a single row in front of the front wall of the lock chamber.

23. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, at a position in front of a front wall of a lock chamber, on a cassette table, the cassette being exposed to the air;

carrying in the sample into a vacuum processing chamber, using the lock chamber, wherein the sample is carried directly from the cassette to the lock chamber, samples being transferred from the cassette to the lock chamber;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum processing chamber, to said cassette from which the sample had been carried into the vacuum processing chamber, using said lock chamber.

24. The method according to claim 23 wherein said cassette is placed at a position in a single row in front of the front wall of the lock chamber.

25. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, at a position in a row in front of a front wall of a lock chamber, on a cassette table, disposed under a cassette transferring atmospheric pressure;

carrying in the sample into a vacuum processing chamber, using the lock chamber, whereby the sample is carried into the lock chamber from the cassette;

processing said sample in said vacuum processing chamber; and

carrying out said sample, processed in said vacuum processing chamber, using said lock chamber, whereby the sample is carried out from the lock chamber to the cassette,

wherein the sample is carried from the cassette to the lock chamber in a direction opposite to the direction in which the sample is carried out from the lock chamber to the cassette.

26. A method of treating a sample, comprising the steps of:

placing a cassette, containing the sample, at a position in a row in front of load and unload lock chambers, the load and unload lock chambers being separate chambers, the cassette being placed on a cassette table disposed under a cassette transferring atmospheric pressure;

carrying in the sample into a vacuum processing chamber, using the load lock chamber;

processing said sample in said vacuum processing chamber; and

Sub B8 > carrying out said sample, processed in said vacuum processing chamber, using said unload lock chamber.

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